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Amendments to the Claims

1. (Currently Amended) A water-based metal surface treatment composition for forming a lubricating film with excellent marring resistance comprising:

(a) a water-based urethane resin having:

~~, in which the an~~ average molecular weight of the water-based urethane resin is at least 3000, and having

a resin skeleton which comprises a bisphenol skeleton, and at least one carboxyl group, and urea bonds, and

~~thea nitrogen content of nitrogen participating in an isocyanate reaction during the synthesis of said water-based urethane resin is between 2 and 13 wt%,~~

wherein synthesis of said water-based urethane resin comprises:

an isocyanate reaction with one or more polyols to form one or more resin skeletons, wherein at least a portion of the one or more polyols has a bisphenol skeleton,

introduction of at least one carboxyl group to the one or more resin skeletons, and

introduction of urea bonds to the one or more resin skeletons;

wherein the nitrogen content of water-based urethane is based on nitrogen atoms that participated in the isocyanate reaction; and

wherein and the ratio of the nitrogen in urea bonds to the nitrogen participating in the isocyanate reaction, which is the proportion of nitrogen atoms present in pertaining to urea bonds out of to the nitrogen atoms that participated participating in the isocyanate reaction during the synthesis of said water-based urethane resin, is between 10/100 and 90/100;

(b) a hardener;

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(c) silica; and

(d) a polyolefin wax,

wherein the combined amount of components (a) and (b), as solids with respect to the total solid weight (e), is 50 to 95 wt%, the equivalent ratio of functional groups in component (b) with respect to the equivalents of carboxyl groups contained in the resin skeleton of component (a) is 0.10 to 1.00, the solid weight of component (c) with respect to (e) is 3 to 40 wt%, and the solid weight of component (d) with respect to (e) is 2 to 30 wt%.

2. (Currently Amended) A water-based metal surface treatment composition as defined in Claim 1, wherein the nitrogen content of ~~nitrogen participating in an isocyanate reaction during the synthesis~~ of the water-based urethane resin is 5 to 10 wt%.

3. (Previously Presented) A water-based metal surface treatment composition as defined in Claim 1, wherein the hardener comprises at least one type of functional group selected from the group consisting of epoxy groups and isocyanate groups.

4. (Original) A water-based metal surface treatment composition as defined in Claim 1, wherein the amount of carboxyl groups in the water-based urethane resin is 10 to 50 calculated as the acid value for the solids of said resin.

5. (Previously Presented) A water-based metal surface treatment composition as defined in Claim 1, wherein the saponification value of the polyolefin wax is zero to 30, and the structure of the polyolefin wax is branched.

6. (Original) A water-based metal surface treatment composition as defined in Claim 1, wherein the polyolefin wax has an average particle size of 0.1 to 7.0 μm .

7. (Currently Amended) A water-based metal surface treatment composition as defined in Claim 1, wherein the proportion of ~~ratio of the~~ nitrogen in urea bonds to the nitrogen that participated ~~participating~~ in the isocyanate reaction is between 40/100 to

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80/100.

8. (Previously Presented) A water-based metal surface treatment composition as defined in Claim 1, wherein the equivalent ratio of functional groups in component (b) with respect to the equivalents of carboxyl groups contained in the skeleton of component (a) is 0.30 to 1.00.

9. (Previously Presented) A water-based metal surface treatment composition as defined in Claim 1, wherein the combined amount of components (a) and (b), as solids with respect to the total solid weight (e), is 55 to 75%.

10. (Previously Presented) A water-based metal surface treatment composition as defined in Claim 1 wherein the solid weight of component (c) with respect to (e) is 10 to 30 wt %.

11. (Previously Presented) A water-based metal surface treatment composition as defined in Claim 1, wherein said silica has a particle size of 3 to 30 nm.

12. (Previously Presented) A water-based metal surface treatment composition as defined in Claim 1, wherein said polyolefin wax has a melting point of 110 to 160°C.

13. (Previously Presented) A method of forming a lubricating film with excellent marring resistance on a metal surface, said method comprising:

- (a) forming a coating on said metal surface of the water-based metal surface treatment composition of Claim 1; and
- (b) drying said coating.

14. (Previously Presented) The method of Claim 13 wherein said metal surface is a material selected from the group consisting of cold rolled steel sheets, galvanized steel sheets, and stainless steel sheets.

15. (Previously Presented) The method of Claim 13 wherein said coating after drying has a weight of from 0.3 to 5.0 g/m².

16. (Previously Presented) The method of Claim 13 wherein said metal surface is degreased prior to step (a).

17. (Previously Presented) The method of Claim 13 wherein a primer film is formed on said metal surface prior to step (a).

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18. (Previously Presented) A lubricating film obtained by drying a coating of the water-based metal surface treatment composition of Claim 1.

19. (Currently Amended) A water-based surface treatment composition for forming a lubricating film with excellent marring resistance, comprising:

(a) a water-based urethane resin having:

~~in which the an average molecular weight of the water-based urethane resin is at least 3000, and having~~

a resin skeleton which comprises a bisphenol skeleton, and at least one carboxyl group, and urea bonds, and

~~the a nitrogen content of nitrogen participating in an isocyanate reaction during the synthesis of said water-based urethane resin is between 5 and 10 wt%,~~

wherein synthesis of said water-based urethane resin comprises:

an isocyanate reaction with one or more polyols to form one or more resin skeletons, wherein at least a portion of the one or more polyols has a bisphenol skeleton,

introduction of at least one carboxyl group to the one or more resin skeletons, and

introduction of urea bonds to the one or more resin skeletons;

wherein the nitrogen content of water-based urethane is based on nitrogen atoms that participated in the isocyanate reaction; and

wherein and the ratio of the nitrogen in urea bonds to the nitrogen participating in the isocyanate reaction, which is the proportion of nitrogen atoms present in pertaining to urea bonds out of to the nitrogen atoms participating in the isocyanate reaction during the synthesis of said water-based urethane resin, is between 40/100 and 80/100;

(b) a hardener comprising at least one type of functional group selected from the group consisting of epoxy groups and isocyanate groups;

(c) silica having a particle size of 3 to 30 nm; and

(d) a polyolefin wax having a branched structure, an average particle size of 0.1 to

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7.0 μm and a saponification value of zero to 30;

wherein the combined amount of components (a) and (b), as solids with respect to the total solid weight (c), is 55 to 75 wt %, the equivalent ratio of functional groups in component (b) with respect to the equivalents of carboxyl groups contained in the resin skeleton of component (a) is 0.30 to 1.00, the solid weight of component (c) with respect to (e) is 10 to 30 wt %, and the solid weight of component (d) with respect to (e) is 10 to 25 wt %.

20. (Previously Presented) A lubricating film obtained by drying a coating of the water-based surface treatment composition of claim 19.

21. (Previously Presented) A method of forming a lubricating film with excellent marring resistance on a metal surface, said method comprising:

- (a) forming a coating on said metal surface of the water-based metal surface treatment composition of claim 19; and
- (b) drying said coating.